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*Published in:*  
Population, Space and Place

*DOI:*  
[10.1002/psp.2744](https://doi.org/10.1002/psp.2744)

*Publication date:*  
2023

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication in Tilburg University Research Portal](#)

*Citation for published version (APA):*  
Weber, T., van Mol, C., & Wolbers, M. H. J. (2023). Destination choices of international students in the Netherlands: A meso-level analysis of higher education institutions and cities. *Population, Space and Place*. <https://doi.org/10.1002/psp.2744>

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# Destination choices of international students in the Netherlands: A meso-level analysis of higher education institutions and cities

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## Funding information

Nederlandse Organisatie voor Wetenschappelijk Onderzoek

## Abstract

This study quantitatively investigates enrolments of international students using data that contains nearly every student in the Netherlands for the years 2016–2019. Using this data, we are able to perform a meso-level analysis where we could investigate the characteristics of higher education institutions (HEIs) and cities in international student mobility. This research contributes to the literature by studying variation between HEIs and by focusing on actual enrolments instead of relying on survey results. Such meso-level studies have thus far been very rare, especially on this scale. Although there are commonalities between types of degrees, we find mixed results for academic and city characteristics, and it appears that academic factors are more important for master students while for bachelor students city characteristics have stronger effects. The effect of having already existing stocks of international students appears to be important for all types of degrees. Aside from differences between bachelor and master students, our findings also suggest that HEIs might directly influence international student flows as this would explain some of our results. Although this study only focuses on the Netherlands, it opens up many avenues for future comparative research on the destination choices of international students and the role of HEIs.

## KEYWORDS

amenities, bachelor master students, city characteristics, degree mobility, higher education institutions, international student mobility, meso-level

## 1 | INTRODUCTION

Over the past 15 years, the academic literature on the determinants of international student mobility (ISM) has grown rapidly. However, almost all the existing literature focuses on the macro-level (studying characteristics of countries) or the micro-level (investigating characteristics of individual students) while meso-level studies [focusing on characteristics

of cities and organisations (in this context higher education institutions (HEIs))] are very rare, especially large-scale quantitative studies. This is unfortunate, as an analysis of the meso-level allows for a more fine-grained evaluation of why students move to certain destinations (Barnett et al., 2016). In this paper, we aim to address this gap by presenting a quantitative analysis of the meso-level by looking at differences in ISM patterns towards HEIs in the Netherlands.

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On the one hand, macro-level studies have the advantage of being able to uncover large patterns of ISM. However, they generally fail to consider variation within countries and specifically between HEIs. HEIs play an active role in recruiting international students that lead to differences within countries; such differences are often overlooked despite being crucial in shaping ISM (Findlay, 2011; Findlay et al., 2017). Furthermore, besides country-level characteristics, students likely also take host city characteristics into account when making mobility decisions (Kosmaczewska, 2020; Van Mol & Ekamper, 2016). However, our knowledge of the role city characteristics play in shaping international student mobility remains limited today.

On the other hand, micro-level studies are able to uncover the motivations of students, but they generally take place at only a very small number of HEIs and/or locations (and most of the time only a single HEI). Consequently, the results of such studies tend to be biased towards the specific strengths and weaknesses of the institutions where the studies were carried out (Hemsley-Brown & Oplatka, 2015), or the specificity of the city the institution is located in. In addition, studies on the motivation of students regarding enrolment suffer from the so-called intention-behaviour gap (Sheeran & Webb, 2016), which states that the reasons students give for choosing a study do not necessarily line up with their actual behaviour, that is, their enrolment. A second problem is that students cannot necessarily articulate what drew them to study at a HEI. For example, Hemsley-Brown (2012) found that on application forms students often repeated information and phrases that are found on the website and advertisement of the specific HEIs.

Following the above observations, our paper aims to improve our scientific insight of meso-level dynamics of ISM by investigating which characteristics of HEIs and cities correlate with increased enrolments of international students, using the Netherlands as a case study. The Netherlands is of particular interest, because it has become an attractive destination for international students due to its relative affordability, large selection of English-language study programmes, and government policies stimulating incoming mobility, which have made it a viable alternative to Anglo-Saxon countries (van Donselaar et al., 2022). Our analysis relies on a full population data set that contains enrolments of degree students for nearly all HEIs in the Netherlands for the period 2016–2019. This presents us with an important advantage, because it allows us to quantitatively test which characteristics of HEIs and cities correlate with actual enrolments. Although our research is still largely explorative in nature, the empirical analysis enables us to uncover hitherto unknown patterns of international student mobility providing a first step in filling the current knowledge gap in this area.

## 2 | LITERATURE REVIEW

### 2.1 | The Dutch context

In the Netherlands, higher education comes in two types: Research Universities (RUs) and Universities of Applied Science (UASs) (Nuffic, 2019). RUs have a stronger focus on imparting theoretical and scientific knowledge, and as a result most of the teaching staff is also

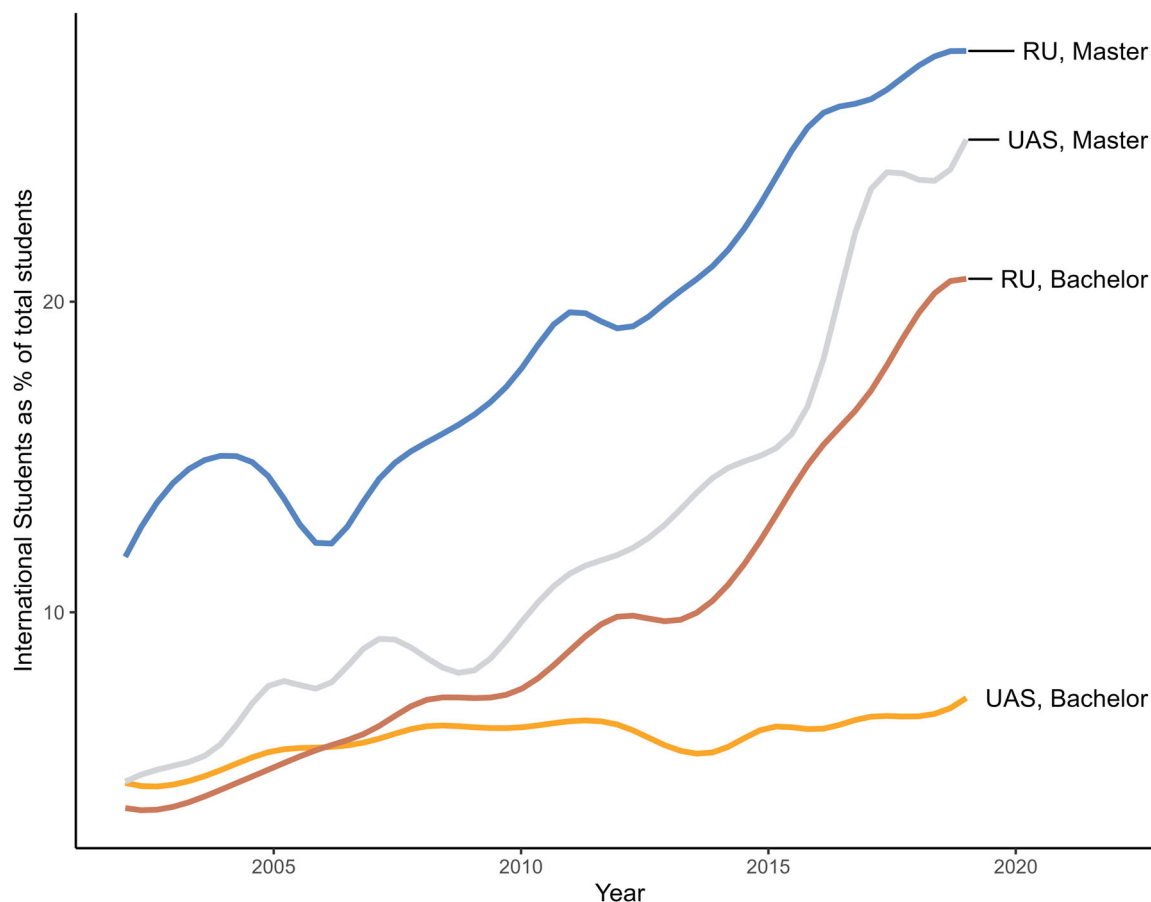
active in academic research. UASs, sometimes referred to as vocational universities, are more focused on transferring theoretical knowledge in close alignment with the professional practice, and its staff does less much research. RUs are generally considered to be more prestigious and are mostly rated higher in international rankings, and RUs also have stricter entry requirements. UASs also mostly focus on bachelor's degrees, with master's degrees at UASs being far less common. In sheer size, UASs have both more institutions and more students, but they tend to have a more regional focus and therefore offer more programmes in Dutch instead of English.

For public HEIs in the Netherlands, Dutch students as well as students from the EU/EEA, Switzerland, and Suriname pay the same tuition for all programmes which is set by the government (unless they are enrolled for a second bachelor's or second master's degree). For students from outside the EU/EEA, however, each programme can have different tuition fees that can vary considerably, and HEIs are free to determine how high the tuition fee is (van Donselaar et al., 2022).

In 2013, the Dutch Ministry of Education, Culture, and Science announced plans to further stimulate the internationalisation of higher education (Bussemaker, 2013). The main rationale was to attract talent, increase diversity, contribute to students' development, and fill up shortages in the labour market (van Donselaar et al., 2022). However, in recent years the internationalisation of HE has come under increasing scrutiny, as the number of international students has risen very quickly and some academics and politicians feel that it (negatively) impacted the quality of the study programmes, and that it also contributed to housing shortages (Rijksoverheid, 2023).

Figure 1 shows the growth in the share of international student enrolment in the Netherlands. Especially RUs have seen a large increase in international students in the last few years, with the strongest increase at the bachelor level. It can also be seen that UAS bachelors have seen a much smaller increase compared to the other study streams. A reason for this could be that RUs specifically tried to internationalise the curriculum by changing the language of many study programmes to English which thus made them more accessible to international students. UASs, on the contrary, kept most of its study programmes in Dutch, because they tend to function more as regional providers of HE, and changing the study programme into English would make it less accessible (for Dutch students). Table 1 shows the total number of international students over the period 2002–2019 (in three categories). While UAS bachelor programmes used to host the most international students, they have been completely eclipsed by RUs in terms of total enrolments. Furthermore, it can be seen that RU master programmes have become the largest category, while UAS masters are by far the smallest category.

Figure 2 shows the number of international students per city with the size of the circles indicating the number of international students enrolled in English-language programmes. Three cities are included as reference points. The Netherlands is relatively unusual in that it has a very high population density but no very large cities. The capital, Amsterdam, has a population of only 863,000 inhabitants and only eight cities have a population of more than 200,000 inhabitants. Figure 2 shows that although most international students are enrolled



**FIGURE 1** Relative number of first-year enrolments of international students by study type. RU, Research Universities; UAS, Universities of Applied Science.

**TABLE 1** Total number of international students per study type 2002–2019.

|                         | 2002–2007 | 2008–2013 | 2014–2019 |
|-------------------------|-----------|-----------|-----------|
| UAS Bachelor Programmes | 36,197    | 50,864    | 51,292    |
| RU Bachelor Programmes  | 13,217    | 28,916    | 64,459    |
| UAS Master Programmes   | 2254      | 3324      | 6307      |
| RU Master Programmes    | 14,960    | 44,860    | 78,435    |

Abbreviations: RU, Research Universities; UAS, Universities of Applied Science.

in a HEI in Amsterdam, many other cities host a lot of international students as well. For example, even though Maastricht (in the south-east) is the second most popular city after Amsterdam, it is only 13% the size of Amsterdam which shows that international students do not necessarily move towards the largest cities.<sup>1</sup> This is also

<sup>1</sup>One reason why Maastricht hosts so many students is because it is very close to the Belgian and German border. However, even when students from these two countries are excluded in the city comparison, Maastricht continues to be a popular destination coming in third place shortly after Rotterdam.

remarkable considering that Maastricht has both less RUs and UASs than Amsterdam. From Figure 2 it is clear that the distribution of international students is highly uneven: while international students are enrolled in HEIs in 34 cities in total, more than half of the international students are enrolled in just four cities (Amsterdam, Maastricht, Rotterdam, and Groningen).<sup>2</sup>

## 2.2 | How HEIs profile themselves

As part of identifying which characteristics are considered to be relevant for the empirical analysis, the websites of all the HEIs in the Netherlands were coded based on how they chose to market and profile themselves to prospective (international) students (see Appendix A for more details). From this coding, three main dimensions emerged. The first is Academic Characteristics which was signalled by indicators such as the quality of the study programmes, the ranking of the institution, the quality of facilities, and affordability. The second dimension that emerged was City Life indicated by descriptions of the amenities and quality of life in the

<sup>2</sup>The numbers are based on own calculations using the data that are also used for the empirical analysis.





## 2.3 | Academic characteristics

The first indicator, related to Academic Characteristics, is the quality of the study programme, which can be signaled by ranking and accreditation that a study programme has acquired. After all, a higher ranking signals that the degree offers good experience, knowledge, and skills that are useful in later careers and personal development. For this reason, many studies have revealed that this is an important factor for international students to base their decision on (e.g., Lee, 2014; Mahmoud et al., 2019; Perez-Encinas et al., 2020).

Related to the quality of the study programme is our second indicator: the satisfaction of the facilities offered at a HEI, such as the library or digital learning environment (Abubakar et al., 2010; Lee, 2014; Mahmoud et al., 2019). Good facilities make the study more enjoyable and the facilities are often shown on websites of HEIs thus allowing students to base their decision on it.

The third and final indicator is the reputation of the institution that the programme is provided by. HEIs with a good reputation and high scores on international rankings can be seen as more desirable and prestigious, which in turn might signal quality to students (Souto-Otero & Enders, 2017). It is no surprise, then, that several studies have found this to be a relevant factor for students to decide where to study (Abubakar et al., 2010; Lee, 2014; Mahmoud et al., 2019).

## 2.4 | City Life

Studying abroad is about more than simply following courses; for many students, the offerings of the city also matter when choosing a destination (Perez-Encinas et al., 2020). Our first indicator is the size of the city, as large cities tend to offer more excitement and options than smaller cities. Van Mol and Ekamper (2016), for instance, found that ERASMUS students showed a preference for large cities over prestigious universities.

A second city characteristic is the density of amenities in a city, as amenities have been found to matter for Dutch students in the Netherlands (Sá et al., 2004), so they might matter for international students as well. We specifically look at the number of hotels, restaurants, and bars per capita in a city, which is a more specific measure of amenities offered by a city, and which is not necessarily the same as city size. For example, the city of Maastricht is relatively small, but has a much higher number of hotels, restaurants and bars per capita than large cities, such as Utrecht, the Hague and Rotterdam.<sup>3</sup>

The third indicator is cost of living, which is often found to be relevant in destination decisions (Abubakar et al., 2010; Ahmad & Hussain, 2017; Brown et al., 2016; Cubillo et al., 2006; Perez-Encinas et al., 2020). Cities that are very expensive to live in, might not be accessible to everyone, especially not for students from lower-income countries. This could, therefore, be a good reason for

international students to not choose a certain city. However, there could also be a case of reverse causality here, because if a city is more attractive, then this can drive up the price of housing (Garretsen & Marlet, 2017).

## 2.5 | International Level

International students often specifically look for an international environment (Roga et al., 2015) and therefore our first indicator is an HEI's pre-existing stock of international students. Having many international students enrolled in the programme and/or the institution could also increase the likelihood of information being shared through word-of-mouth, and it could indicate a more successful internationalisation policy of a HEI, which in turn could signal that a HEI is a desirable place to study for international students (Chen, 2008). Thus, having a large pre-existing stock of international students likely increases the number of future enrolments.

A second indicator of the international level is the number of previously enrolled students from the same origin country. Because migration is a costly and stressful experience, the transition is made easier if there are already existing networks in the destination country (Beine et al., 2014). To cope with culture shock, international students often form friendships with students from the same cultural background (Zhou et al., 2008). Existing international students might also spread positive stories and experiences when being in their home country, drawing in even more students (Bohman, 2014).

## 2.6 | How HEIs attract international students

To decide where to enrol, students have to acquire and act upon information about the programme, institution, and city. One of the most common sources of information prospective students use is websites (Bohman, 2014) and, in the Netherlands, students can use websites like [studyinnl.org](http://studyinnl.org) which provide them with information, such as the contents of the programme, tuition fees, and available scholarships. Individual programmes often also have websites through which they can signal attractive features, such as rankings or employability statistics, and city life. Information can also spread through word-of-mouth operates, for example through family members, friends or alumni who come to speak at schools, but also through social media (Le et al., 2019).

Furthermore, HEIs play an active role in recruiting and targeting students through, for example, visiting education fairs (Findlay, 2011). In addition, many HEIs employ agents, who act as intermediaries between the HEIs and the prospective students, because it is assumed that such agents have better access to local markets and operate at lower costs (Huang et al., 2020). In the Netherlands, it is estimated that about 20% of international students find their way to the Netherlands through a third-party agent (Van De Meent, 2019). It is likely that this number is higher for UASs (Van De Meent, 2019) due to the fact they often do not have global name recognition and, therefore, have to rely on third-party agents

<sup>3</sup>In 2019, Maastricht had 5.6 hotels, restaurants and bars per 1000 inhabitants compared to 4.7 for the Hague, and 4.3 for both Utrecht and Rotterdam (CBS-statline, 2021).

to make themselves known (Coco, 2015). Agents are especially popular in countries where the parents have a large say in the choice of destination, such as in East-Asian countries (Brooks & Waters, 2011), because agents are trusted to give advice when choosing a HEI (Robinson-Pant & Magyar, 2018).

Because we only have data on enrolments, and we are missing data on the motivations of students and recruitment activities of HEIs, there are some implications for how the indicators should be interpreted. For example, the stock of same-nationality students at a HEI can indicate that the preference for a HEI spreads through word-of-mouth, but it can also mean that HEIs and agents target specific countries. Similarly, indicators of academic quality and good city life can denote that students seek these out, but it can also express that they give HEIs and agents better markers to profile and distinguish themselves. Ultimately, however, the results of the empirical analysis remain explorative and cannot be causally interpreted or attributed to specific actors.

## 2.7 | Differences between types of HEIs and study programmes

An important distinction to make in research on ISM is type of study, as the motivation of students and institutions can vary (King & Raghuram, 2013). In this paper, we expect that there might be important differences between students enrolling in RUs and UASs and between bachelor's and master's degrees. As discussed earlier, RUs have stricter entry requirements which could deter certain students, and UASs are more likely to rely on agents, because they lack name recognition. Furthermore, pursuing a master's degree is less of a commitment and is more likely to contain students interested in an academic career, while bachelor students might look at the study abroad experience more holistically. However, very few studies have looked into these distinctions (an exception being Perez-Encinas et al., 2020) and, so, we do not formulate explicit hypotheses on differences between the type of study and type of degree.

## 3 | DATA AND METHODS

### 3.1 | Dependent variable

The data for the dependent variable was received from DUO, a government agency which is part of the Dutch Ministry of Education, Culture, and Science. The data contains the number of first-year enrolments (but excludes exchange students) per study programme at an institution, split up by the country of origin (measured as the country where the student attained their secondary education) for the years 2016–2019.<sup>4</sup> This thus means that it contains the number of first-year students from country A, at study programme B, at institution C, in city D, in year E. All possible origin countries are

included in this data set and for each country of origin, it was counted how many students from a country were enrolled in a study programme, including if there were no students from a certain country of origin at all. This means that for the majority of cases (around 94%) the dependent variable has the value 0.

The data received from DUO count the number of the students enrolled on October 1st for a given year. In this data set, the country of origin of non-Dutch students is only reported if they completed their previous secondary education in a country outside of the Netherlands. For example, a student with the Greek nationality who completed high school in the Netherlands and then enrolled in a Dutch bachelor programme would be counted as 'Dutch'. In contrast, a Greek student who finished high school in Greece and then enrolled in a bachelor programme in the Netherlands would be counted as 'Greek'. This ensures that the definition of international student is in line with that of UNESCO and Nuffic, and thereby also approximates the actual mobility aspect. Note that an international student who is enrolled for a master's degree, but finished their bachelor's degree in the Netherlands as well would still count as an international student.<sup>5</sup>

### 3.2 | Independent variables

A full overview of the independent variables can be found in Appendix B. The data for measuring the quality of a student programme was received from Keuzegids, an independent guide that assesses the quality of study programmes (Keuzegids, 2021). 70% of their assessment is based on data from the national student survey (NSE in Dutch) of the year before, while 30% is based on other factors, such as drop-out rate and the number of students finishing a degree on time. While each study programme receives a normalised score, Keuzegids awards high-scoring programmes (score of 75 or higher) with a 'top-rated programme' certificate. We decided to operationalise this score as a dummy variable, indicating whether a study programme received such a certificate (1) or not (0). This is because such certificates can be used by websites and agents to signal excellence. Although not all programmes were included in the Keuzegids ranking (usually because the study programmes did not participate in the national student survey), programmes that were not included, could simply be assigned the value 0. After all, if a programme is not ranked by Keuzegids, it could also not have received a certificate of excellence.

The quality of the facilities of an institution was also measured using data from Keuzegids, because it has an indicator (originally from the national student survey), which measures the satisfaction with the facilities. The measure from Keuzegids is on the level of study programmes, but because the items are not very programme-specific, it could be aggregated to the level of institutions.

The reputation of the institution is measured using the overall score of a HEI from the Times Higher Education (THE) World

<sup>4</sup>The data was generated before the COVID-19 pandemic started.

<sup>5</sup>There is also no separate category for premaster students; instead, they are registered as bachelor students.

University Rankings. All of the RUs were on the list, but none of the UASs were. So, this variable is only included when analyzing the RUs. For most of the RUs, a score was available for all years, but for Tilburg University and the University of Twente the score was missing for some years, although their rank was available. Luckily, the relationship between the score and the ranking follows a highly predictable logarithmic relationship ( $R^2 > 0.95$ ), which enabled us to extrapolate the missing scores.

The first two city characteristics, size and amenities, were taken from Statistics Netherlands (CBS-statline, 2021). Size was measured as the total population of a municipality in a given year; the amenities were measured as the total number of hotels, restaurants, and bars per capita per municipality per year. For the final indicator, cost of living, the data were published by Kences (2021) and collected by ABF-Research (2021). This variable measures the average cost of living for students including accompanying costs and minus subsidies.

The stock of already existing international students was taken from Nuffic (2022) that uses the same data source as in this paper (from DUO). This variable therefore measures the total number of international students enrolled at a HEI 1 year earlier, not just the first-year students. It was decided to use this data instead of simply aggregating the data for the dependent variable, because such aggregation cannot account for factors such as drop-outs and study delays. For the stock of same-nationality international students, we did have to aggregate it ourselves, because Nuffic does not disaggregate their data based on nationality. We created this variable by first calculating the sum of first-year enrolments of each nationality in previous years per study programme (3 years for RU bachelors, 4 years for UAS bachelors, and 1 year for master programmes). This data could then be further aggregated to the level of the HEI.

### 3.3 | Control variables

As control variables we included the total number of students (including Dutch students) per study programme. This is to account for the fact that bigger programmes would see more enrolments of international students simply by virtue of being bigger. This also has the added effect that the results essentially show what the effect of the independent variables is on the *relative share* of international students per study programme instead of the absolute number of international students. Second, we included the total population aged 15–24 of the origin country of international students, which was taken from UNESCO (2021). Data were available for almost all countries with the exceptions of Ukraine, Taiwan, Monaco and Andorra which had to be removed from the empirical analysis. Third, we included a measure of the distance between the origin country and the Netherlands which was taken from the CEPII institute (CEPII, 2021). Fourth, we included a variable indicating whether an origin country is part of the EU/EEA, or is Switzerland or Suriname, because the aforementioned countries pay much lower tuition fees. Finally, we included field of study, since not every HEI offers every

type of study and, therefore, an international student's preferred field of study could influence their choice of destination. This also has the advantage of taking into account, to some extent, differences in tuition fees, as they are often based on the facilities that a study programme requires. These fields of study are based on the central registration of the Dutch higher education sector (CROHO in Dutch) and data per study programme was provided by Nuffic. The fields of study are: agriculture, economics, education, engineering, interdisciplinary, language and culture, law, medicine, natural science, and social science. Unfortunately, we could not include tuition fees themselves, because most study programmes had not disclosed this.

### 3.4 | Selection of study programmes

For the empirical analysis, it was decided to only include study programmes that are offered in English and exclude Dutch-taught programmes. Dutch is not a common language globally, so it is likely that international students who enrol in Dutch HE would do so in English-taught programmes. Including Dutch-taught programmes could bias the results, because international student mobility is measured here based on the country where the secondary education was completed, but this does not mean that the country of origin is not the Netherlands and that the nationality is not Dutch. It is possible, for example, that many of the international students enrolled in Dutch-language programme are children of Dutch emigrants who have the Dutch nationality. Furthermore, for German and Belgian students the appeal of Dutch HEIs might have a regional function, that is, they are preferred because they are close by and accessible. For Belgian and certain Germans, the language barrier would also play a smaller role and, hence, these students would actually be more akin to Dutch students. This is shown, for example, by the fact that of the international students enrolled in Dutch-language programmes, 42.3% completed their secondary education in Germany or Belgium. It is also not uncommon for Dutch citizens to live just across the border in Germany and Belgium and send their children to school there, even though their children are Dutch. Because of these uncertainties regarding international students enrolled in Dutch-language programmes, it was decided to only focus on English-language programmes. Most of the data to determine the language of the study programme was taken from Keuzegids, but to fill in some missing gaps, data was taken from the Studiekeuze123 database or by looking up the study programmes manually.

### 3.5 | Missing data

Several variables contained missing data: for cost of living this was 5.2%, while for the quality of facilities this was about 3.8%. Slightly more problematic is that for the quality of facilities and cost of living quite a few HEIs and cities had to be excluded entirely: 15 out of 34 municipalities and six out of 40 HEIs had no data available for both variables. Although this only amounts to a small minority of



international students (around 8%), still valuable variation would be left out, if these cities and HEIs had to be excluded; this is especially the case for UASs. For this reason, these cities and HEIs were only excluded from the models that had quality of facilities or cost of living as independent variables.

### 3.6 | Analytic strategy

To model the enrolments of international students, we used multi-level regression analysis to account for the nested structure of the data. Specifically, random intercepts were included for municipalities, HEIs, study programmes, and years. Because the dependent variable is count data and because the dependent variable contains a large number of zeroes, we estimated the results using a negative binomial distribution.<sup>6</sup> Size of the study programme and origin country are known as 'exposure variables' which measure the context in which the count of the dependent variable emerged. Because a negative binomial model estimates the logit of the dependent variable, it is generally recommended to also apply a logarithmic transformation to the exposure variables (although not necessarily to the other independent variables) (Winter & Bürkner, 2021). Because of the limited degrees of freedom at the level of cities and HEIs, it was decided to not include all of the city and HEI variables simultaneously. Furthermore, when we ran the models with all the city and HEI-level variables at the same time, they were shown to be highly multicollinear with VIF values mostly exceeding acceptable thresholds (but this was not the case for the study programme variables). Including them all in the same model would therefore likely produce biased and inaccurate results.

### 3.7 | Limitations

The data in this study represents a case study about a single country and the results do not necessarily generalise to other countries. It is likely that some sort of selection bias is at play, simply because the students in the data chose the Netherlands over other countries, and we do not know if students who choose different countries are similar or not. The Netherlands is also a relatively small country with good public transport. So, the results might be different for larger countries. Furthermore, given that the observation window ended in 2019, we could not investigate possible consequences of the COVID-19 pandemic.

## 4 | RESULTS

Tables 3–6 show the multilevel regression results, split up by type of HEI and study programme. Interestingly, the four tables show some important differences on the three dimensions which will be

discussed below. We also ran models where the size of the study programme was not included as a control variable, thus estimating the absolute number of enrolments of international students (results are not shown, but available on request from the authors). The results were largely similar, but below we will occasionally discuss some of the differences found between these models.

### 4.1 | Academic Characteristics

From the four tables, it can be seen that the indicators of academic quality had different effects for the four study types. Having a quality certificate only correlates with a larger share of enrolments of international students for RU master's degrees. For bachelor programmes at UASs, the effect is even negative, indicating that studies that have a quality seal see a smaller share of international student enrolments. The second indicator, quality of facilities, also shows mixed results. Only UAS bachelors see a positive effect on enrolments, while for RU bachelors it is negative, and for both master programmes it is not significant. When we ran the models without controlling for the total number of students in the programme, thus giving an estimate of absolute enrolments, the effects of having a quality seal and higher satisfaction with facilities, became negative for all models (with the exception of the effect of a quality seal for UAS masters). This could thus indicate a possible reverse causality: if more international students enrol, this could negatively impact the quality of and satisfaction with the study programme and facilities. Finally, the variable international ranking interestingly enough shows the opposite effect of having a quality certificate: for RU bachelors it is positive, while for RU masters it is not significant. It seems strange that these results are opposing, but it could have to do with how the students access information. Master students might be better able to navigate the Dutch higher education landscape and might, therefore, be more likely to evaluate study programmes on a case-by-case basis, while bachelor students rely more on the general reputation of the HEI. However, it could also mean that more prestigious institutions put more resources into recruiting bachelor students, or that prestigious universities have other desirable qualities to bachelor students.

### 4.2 | City Life

The results for the characteristics of city life show a much more consistent picture. For bachelor students, all three characteristics show positive effects, including cost of living. Here, there are also clear differences between bachelor and master students: the city characteristics have a much stronger influence on enrolments for bachelor programmes than for master programmes. Indeed, for the master programmes only the number of hospitality services is significant for RUs, and this effect is also much weaker than for the bachelor programmes.

<sup>6</sup>Due to the large amount of zeroes, we also ran zero-adjusted negative binomial models, but these provided worse goodness of fit statistics than the regular negative binomial models.

**TABLE 3** Multilevel regression results of enrolments in bachelor programmes at research universities.

|   | Model 1            | Model 2            | Model 3            | Model 4            | Model 5            | Model 6            |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Intercept                                       | -4.13***<br>(0.12) | -4.32***<br>(0.12) | -4.14***<br>(0.11) | -4.16***<br>(0.11) | -4.04***<br>(0.12) | -4.17***<br>(0.11) |
| <i>Academic Characteristics</i>                 |                    |                    |                    |                    |                    |                    |
| Programme quality certificate                   | 0.06<br>(0.04)     | 0.06<br>(0.04)     | 0.08<br>(0.04)     | 0.08*<br>(0.04)    | 0.07<br>(0.04)     | 0.02<br>(0.04)     |
| Quality of facilities                           | -0.07***<br>(0.01) |                    |                    |                    |                    |                    |
| International Ranking                           |                    | 0.07***<br>(0.02)  |                    |                    |                    |                    |
| <i>City life</i>                                |                    |                    |                    |                    |                    |                    |
| Total population of city                        |                    |                    | 0.10***<br>(0.01)  |                    |                    |                    |
| Hospitality services per capita                 |                    |                    |                    | 0.13***<br>(0.01)  |                    |                    |
| Price of student lodging                        |                    |                    |                    |                    | 0.07***<br>(0.02)  |                    |
| <i>International level</i>                      |                    |                    |                    |                    |                    |                    |
| % of students at HEI that is International      |                    |                    |                    |                    |                    | 0.05***<br>(0.01)  |
| Number of students from the same Origin country | 0.36***<br>(0.01)  | 0.35***<br>(0.01)  | 0.36***<br>(0.01)  | 0.35***<br>(0.01)  | 0.36***<br>(0.01)  | 0.36***<br>(0.01)  |
| Number of observations                          | 65,130             | 65,310             | 65,310             | 65,310             | 63,681             | 65,310             |
| Number of study programmes                      | 124                | 125                | 125                | 125                | 122                | 125                |
| Number of higher education institutions         | 13                 | 13                 | 13                 | 13                 | 13                 | 13                 |
| Number of cities                                | 16                 | 16                 | 16                 | 16                 | 13                 | 16                 |

Note: Standard errors are between brackets. All continuous variables are standardised. All models are controlled for (the log of the) size of the study programme, (the log of the) number of people aged 15–24 in the origin country, the distance between the origin country and the Netherlands, whether the origin country is in EU/EEA or not, and field of study.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

### 4.3 | International Level

The indicators for the international level are also very consistent. The effect of a pre-existing stock of international students is positive and significant for all models (also in the models estimating absolute enrolments), except for UAS masters. Furthermore, the effect of the number of students from the same origin country is positive for all tables and has by far the strongest impact in predicting new enrolments (the strength of this effect can also be attributed to auto-correlation). This could reflect the role of social networks in driving enrolments, but this could potentially also reveal the influence of the recruitment activities of the HEIs and the role of third-party agents. As was discussed earlier, apart

from general strategies, HEIs also specifically target certain countries, and agents specifically target certain HEIs. This is also supported by the fact that this effect is strongest for UASs which tend to rely more on agents, because they are less known than RUs and find it more difficult to attract international students based on reputation alone.

### 4.4 | Differences between EU/EEA and non-EU/EEA students

We also ran the models separately for EA/EEA students and non-EA/EEA students (results are not shown, but available on request from

**TABLE 4** Multilevel regression results of enrolments in bachelor programmes at universities of applied science.

|   | Model 1            | Model 2            | Model 3            | Model 4            | Model 5            |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|
| Intercept                                       | -4.79***<br>(0.14) | -4.06***<br>(0.08) | -3.98***<br>(0.08) | -3.17***<br>(0.17) | -4.03***<br>(0.08) |
| <i>Academic Characteristics</i>                 |                    |                    |                    |                    |                    |
| Programme quality certificate                   | -0.14**<br>(0.05)  | -0.21***<br>(0.05) | -0.25***<br>(0.05) | -0.10*<br>(0.05)   | -0.16**<br>(0.05)  |
| Quality of facilities                           | 0.04*<br>(0.02)    |                    |                    |                    |                    |
| <i>City Life</i>                                |                    |                    |                    |                    |                    |
| Total population of city                        |                    | 0.12***<br>(0.02)  |                    |                    |                    |
| Hospitality services per capita                 |                    |                    | 0.16***<br>(0.01)  |                    |                    |
| Price of student lodging                        |                    |                    |                    | 0.17***<br>(0.02)  |                    |
| <i>International level</i>                      |                    |                    |                    |                    |                    |
| % of Students at the HEI that is International  |                    |                    |                    |                    | 0.10***<br>(0.02)  |
| Number of students from the same origin country | 0.49***<br>(0.01)  | 0.50***<br>(0.01)  | 0.50***<br>(0.01)  | 0.51***<br>(0.01)  | 0.50***<br>(0.01)  |
| Number of observations                          | 72,577             | 85,251             | 85,251             | 65,160             | 85,251             |
| Number of study programmes                      | 108                | 121                | 121                | 91                 | 121                |
| Number of higher education institutions         | 23                 | 25                 | 25                 | 22                 | 25                 |
| Number of cities                                | 25                 | 27                 | 27                 | 17                 | 27                 |

Note: Standard errors are between brackets. All continuous variables are standardised. All models are controlled for (the log of the) size of the study programme, (the log of the) number of people aged 15–24 in the origin country, the distance between the origin country and the Netherlands, whether the origin country is in EU/EEA or not, and field of study.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

the authors). These results revealed some differences, but mostly for the RUs. All three indicators of academic characteristics were not significant for EU/EEA students, but the quality seal and ranking were positive for non-EU/EEA students (while the effect facilities was negative). For the city characteristics, non-EU/EEA students at RU bachelors were more likely to enrol in larger, more expensive cities (these indicators were not significant for EU/EEA students), but the effect of the hospitality services was similar. Interestingly, for master students the effects of city characteristics were still not significant for non-EU/EEA students except for the cost of living, which was negative. Finally, the effect of an already existing stock of international students was stronger for EU/EEA students, but not significant for non-EU/EEA students. However, the effect of the number of same-nationality students was much stronger for non-EU/EEA students than for EU/EEA students.

## 5 | DISCUSSION

In this paper, we investigated how characteristics of study programmes, HEIs, and cities correlate with enrolments of international students in Dutch HEIs. We started our paper by looking at how HEIs in the Netherlands profile themselves, and we distinguished three dimensions that HEIs use as selling points: Academic Characteristics, City Life, and the International Level. We then tested whether indicators of these dimensions actually correlated with increased enrolments of first-year international students using a near-population data set. We analyzed RUs, UASs, bachelor and master programmes separately.

The academic characteristics were quite mixed. Higher enrolments were associated with study programme quality only for RU masters, with quality of the facilities only for the UAS bachelors, and

**TABLE 5** Multilevel regression results of enrolments in master programmes at research universities.

|   | Model 1            | Model 2            | Model 3            | Model 4            | Model 5            | Model 6            |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Intercept                                       | -4.65***<br>(0.04) | -4.63***<br>(0.04) | -4.64***<br>(0.04) | -4.61***<br>(0.04) | -4.65***<br>(0.05) | -4.65***<br>(0.04) |
| <i>Academic Characteristics</i>                 |                    |                    |                    |                    |                    |                    |
| Programme quality certificate                   | 0.12***<br>(0.03)  | 0.12***<br>(0.03)  | 0.12***<br>(0.03)  | 0.13***<br>(0.03)  | 0.12***<br>(0.03)  | 0.10***<br>(0.03)  |
| Quality of facilities                           | 0.01<br>(0.01)     |                    |                    |                    |                    |                    |
| International Ranking                           |                    | -0.01<br>(0.01)    |                    |                    |                    |                    |
| <i>City Life</i>                                |                    |                    |                    |                    |                    |                    |
| Total population of city                        |                    |                    | -0.01<br>(0.01)    |                    |                    |                    |
| Hospitality services per capita                 |                    |                    |                    | 0.04***<br>(0.01)  |                    |                    |
| Price of student lodging                        |                    |                    |                    |                    | -0.01<br>(0.01)    |                    |
| <i>International Level</i>                      |                    |                    |                    |                    |                    |                    |
| % of students at the HEI that is International  |                    |                    |                    |                    |                    | 0.10***<br>(0.01)  |
| Number of students from the same Origin country | 0.29***<br>(0.01)  | 0.29***<br>(0.01)  | 0.29***<br>(0.01)  | 0.28***<br>(0.01)  | 0.29***<br>(0.01)  | 0.28***<br>(0.01)  |
| Number of observations                          | 370,142            | 371,229            | 371,229            | 371,229            | 367,609            | 371,229            |
| Number of study programmes                      | 565                | 566                | 566                | 566                | 560                | 566                |
| Number of higher education institutions         | 13                 | 13                 | 13                 | 13                 | 13                 | 13                 |
| Number of cities                                | 15                 | 16                 | 16                 | 16                 | 13                 | 16                 |

Note: Standard errors are between brackets. All continuous variables are standardised. All models are controlled for (the log of the) size of the study programme, (the log of the) number of people aged 15–24 in the origin country, the distance between the origin country and the Netherlands, whether the origin country is in EU/EEA or not, and field of study.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

with ranking only for RU bachelors. Furthermore, bachelor students were more likely to choose destination cities that were bigger, had more amenities, and were more expensive compared to master students (for whom only the number of amenities had an effect). Pre-existing stocks of international students at HEIs correlated with higher enrolments for all study types (except for UAS masters). Finally, we found that previous enrolments of same-nationality students showed a positive association for all study programmes, and was strongest for UASs.

Despite the fact that ISM literature tends to prioritise theories about human capital, this research underlines the importance of taking into account the whole study abroad experience instead of merely focusing on academic factors, a conclusion also stressed by Prazeres et al. (2017) who state that cities can also serve as a marker

of distinction. The fact that the availability of amenities correlated with enrolments of international students mirrors findings from research into internal migration (migration within countries). Although there is debate about the relative importance of amenities versus economic factors (Yu et al., 2019), the fact that local amenities play a role in driving migration has been established in a variety of contexts (Partridge, 2010; Rehdanz & Fasshauer, 2015; Rodríguez-Pose & Ketterer, 2012; Yu et al., 2019). It is likely that international students are not merely aiming at optimising human capital gains, but also value their living circumstances. Indeed, previous studies using micro-level data have found similar results in that students indicate many reasons to enrol, aside from characteristics of the study programme or HEIs (see e.g., Lee, 2014; Mahmoud et al., 2020; Perez-Encinas et al., 2020). Our results do contradict some previous

**TABLE 6** Multilevel regression results of enrolments in master programmes at universities of applied science.

|   | Model 1            | Model 2            | Model 3            | Model 4            | Model 5            |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|
| Intercept                                       | -4.39***<br>(0.20) | -4.73***<br>(0.31) | -4.78***<br>(0.31) | -4.61***<br>(0.09) | -4.75***<br>(0.31) |
| <i>Academic Characteristics</i>                 |                    |                    |                    |                    |                    |
| Programme Quality Certificate                   | 0.01<br>(0.02)     | 0.07<br>(0.10)     | 0.06<br>(0.10)     | 0.13<br>(0.10)     | 0.16<br>(0.11)     |
| Quality of facilities                           | 0.06<br>(0.04)     |                    |                    |                    |                    |
| <i>City Life</i>                                |                    |                    |                    |                    |                    |
| Total Population of City                        |                    | 0.03<br>(0.03)     |                    |                    |                    |
| Hospitality Services per capita                 |                    |                    | -0.01<br>(0.03)    |                    |                    |
| Price of Student Lodging                        |                    |                    |                    | 0.04<br>(0.03)     |                    |
| <i>International Level</i>                      |                    |                    |                    |                    |                    |
| % of students at HEI that is International      |                    |                    |                    |                    | 0.04<br>(0.03)     |
| Number of students from the same Origin country | 1.03***<br>(0.00)  | 0.25***<br>(0.02)  | 0.25***<br>(0.02)  | 0.25***<br>(0.02)  | 0.25***<br>(0.02)  |
| Number of observations                          | 32,940             | 38,913             | 38,913             | 35,293             | 38,370             |
| Number of study programmes                      | 61                 | 69                 | 69                 | 62                 | 68                 |
| Number of higher education institutions         | 19                 | 21                 | 21                 | 17                 | 20                 |
| Number of cities                                | 18                 | 19                 | 19                 | 14                 | 18                 |

Note: Standard errors are between brackets. All continuous variables are standardised. All models are controlled for (the log of the) size of the study programme, (the log of the) number of people aged 15–24 in the origin country, the distance between the origin country and the Netherlands, whether the origin country is in EU/EEA or not, and field of study.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

micro-level studies, as they, for example, found that cost of living is relevant for choosing a destination (Eder et al., 2010; Shanka et al., 2008). Instead, we found that international students generally moved to more expensive cities. Regarding differences between bachelor and master students, Perez-Encinas et al. (2020) found that academic factors were ranked more important than city offerings, and they found no difference between bachelor and master students, which contrasts our own findings. It is possible that there is a gap between international students' preferences and their enrolments, or that international students value certain aspects, but ultimately choose to study somewhere else due to other factors.

The results can also be interpreted by considering active recruitment strategies of HEIs. Some of the results concerning indicators of academic characteristics could reflect HEIs playing to their strengths. UASs, for instance, do not show up on international

rankings and might, therefore, use other characteristics of the HEI as selling points. In addition, it could well be that study programmes that do not score very highly on comparative rankings resort to other methods of attracting students, such as by offering scholarships or through direct recruitment with the help of agents. Among prospective students, especially those from lower-developed countries, enrolling in a HE programme through an agent could also serve as a ticket to access the European labour market (Robinson-Pant & Magyar, 2018). In such cases, the actual quality of the study programme might not matter so much. Furthermore, for certain students, such as East-Asian students, their choice of destination is often influenced by parents (Brooks & Waters, 2011), who in turn might rely more on information provided by agents. Students from far-away countries might also not know enough about the Netherlands to make an independent decision; thus also increasing their



reliance on agents. The results do suggest that this could be the case, as the effect of having pre-existing stocks of same-nationality students at HEIs had a stronger effect for new enrolments for non-EU/EEA students compared to EU/EEA students, while having a larger share of international students in general did not correlate with higher enrolments for non-EU/EEA students. This could indicate that these students tend to follow the advice of co-nationals when choosing a destination, or it could reveal that HEIs target specific countries for recruitment. Unfortunately, we had no access to data about the actual recruitment and interventions that HEIs played, but the findings of this paper do suggest that this is an area worth looking into.

Even though we were only able to uncover broad patterns and correlations, and our interpretations can only be speculative, the findings presented in this paper nevertheless open many avenues for future research, especially on the meso-level. First, the motivations of international students should be conceptualised through more than just human capital theory and the importance of city characteristics and other quality of life indicators should receive more attention. Second, more research needs to be done on how and to which extent HEIs and agents influence ISM. This could also corroborate the importance of city life, because our findings could also reflect the ways in which HEIs and agents marketed the cities. If we only focus on mapping the motivations of international students, we will inevitably fall short in generating a complete understanding of how and why international students choose their destinations.

## ACKNOWLEDGEMENTS

We would like to express our gratitude to Dr. Nicolai Netz for providing valuable feedback on an earlier version of this manuscript.

## CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Dienst Uitvoering Onderwijs (DUO). Restrictions apply to the availability of these data, which were used under license for this study. Data are available from the author(s) with the permission of Dienst Uitvoering Onderwijs (DUO).

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Weber, T., Van Mol, C., & Wolbers, M. H. J. (2023). Destination choices of international students in the Netherlands: A meso-level analysis of higher education institutions and cities. *Population, Space and Place*, e2744. <https://doi.org/10.1002/psp.2744>